

PATENT ABSTRACTS OF JAPAN

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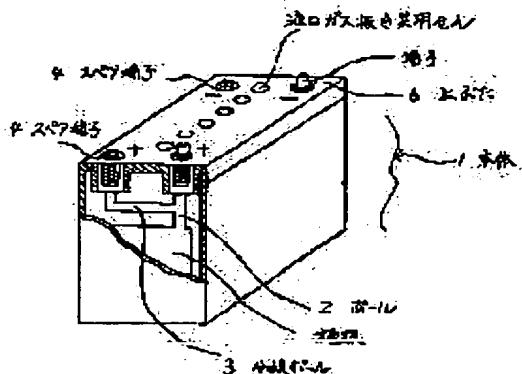
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(54) : STORAGE BATTERY HAVING R AND L SPARE TERMINAL

(57)Abstract:

PURPOSE: To provide a storage battery having R and L spare terminals for performing both of R and L functions with one storage battery regardless of R and L by adding a bolt having a terminal in a storage battery having the same size.

CONSTITUTION: Branch poles 3 are provided from poles 2 positioned under polarity terminals for a positive pole and a negative pole in a storage battery and positive and negative spare terminals 4 are provided in positions opposite to the positive terminals and the negative terminal respectively and coupled to the branch poles 3. Insulating caps are put on the spare terminals 4. The tip parts of the pole 2 and branch pole 3 form a bolt receiving part 7 having a terminal into which a bolt 8 having a terminal is screwed. A supporting flange 9 is provided on an upper lid 6 to fix it.



LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] From the pole in the battery in the lower part of the polar terminal of a positive electrode and a negative electrode (2), the branching pole (3) is formed, respectively, the spare terminal (4) of a negative electrode is prepared in a terminal's of negative electrode other side [a positive electrode] side at a terminal's of positive electrode other side side, and it connects with the branching pole (3). The battery with a spare terminal for R-L characterized by putting an insulation cap on a spare terminal (4).

[Claim 2] (***) Each point of the pole (2) of a positive electrode and a negative electrode and the branching pole (3) forms a bolt receiving part with a terminal (7) so that it may have the size to which the scalpel screw containing a bolt with a terminal (8) is turned off. The bolt receiving part with a terminal (7) shall be the size which can take out the current which saw and was in the capacity of a battery. Since the hole where a bolt with a terminal (8) goes into an upper pig (6) is established in each and a bolt receiving part with a terminal (7) is fixed further, a support flange (9) is prepared in an upper pig (6), and it fixes to it. An insulating pig (5) is attached in the hole of the bolt receiving part with a terminal (7) which screws in a bolt with a terminal (8) and is not used for the bolt receiving part with a terminal of the positive electrode of arbitration, and a negative electrode (7). The screw section of a bolt with a terminal (8) is made into a size which is different with a positive electrode and a negative electrode. The same is said of the scalpel screw section.

(***) In order to distinguish the positive electrode of a bolt with a terminal (8), and a negative electrode, let each be a forward screw and a reverse screw.

The battery with a spare terminal according to claim 1 for R-L which consists of the above configurations.

[Claim 3] In the battery which prepares notching ****, a positive electrode, and a negative electrode, and becomes so that it may become lower than an upper pig front face about the terminal area of a battery, a spare terminal (4) is similarly prepared for the corner on the other side in a notch, a positive-electrode terminal (10), and a negative-electrode terminal (11), respectively.

Insulating covering is prepared in the terminal which is not used. Claim 1, the battery with a spare terminal of two publications for R-L which consist of the above configurations.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the battery carried in a vehicle etc.

[0002]

[Description of the Prior Art] Conventionally, since the battery will be decided for the exception of the size of a battery, startability ability, and R and L etc. by the type of a car in the car carrying a battery etc. in the morning between the transit middle or winter etc. a life or when it damages, it had to be distinguished clearly and an order for it had to be placed. L of a battery means a thing in case right-hand side is a positive electrode, when a terminal is made into a near side. R means the reverse. It was very common for distinction of R and L to have little osmosis in a general user, and to be inconvenient in mistaking R and L, and not preparing them or correspondence being unable to perform immediately an inventory of the battery by which an order for a dealer side was also placed on the other hand in run out especially. In the battery of the same size, there was nothing that can be installed in the both directions of R and L.

[0003]

[Problem(s) to be Solved by the Invention] This had the following faults.

(**) There are two kinds of a variety of batteries, R and L, and there was no compatibility in the battery of each of both directions to the battery of the same size. Even if it was going to use the battery of hard flow forcibly, since the terminal strapping section of a car did not arrive and the location of battery loading was decided with the car, it was very impossible. Moreover, even if it extended and installed wiring by the side of a car, there is possibility, such as a poor contact of an extension, and in being the worst, it reverse-connects a positive electrode and a negative electrode, and the electric equipment article might be damaged.

(**) A manufacturer needs manufacture of two kinds of batteries, R and L, to the battery of the same size, a dealer must carry out two kinds of inventories, respectively, and there are many absolute numbers.

(**) Though it was usable enough, since I hear that there is not the compatibility of R and L and the expiration date only went out, there is a battery which must be disposed of considerably and it is in a very serious situation also in the waste disposal problems of incombustibles, and an environmental problem.

(**) The pole melts, or in the case of repair at the time of corroding, the gas burner etc. was needed and danger has followed.

(**) When the pole is unfixable, even if the battery itself is not faulty, the exchange for every body is required.

(**) when the need term of a battery comes, many which of R and L are needed — that prediction — not being attached — surely — on the other hand, the present condition is that it is insufficient and one side remains, and the surplus one is altogether set as the object of disposal, if the expiration date of half a year goes out.

[0004]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, from the pole in the battery of the polar terminal of a positive electrode and a negative electrode (2), the battery with a spare terminal for R-L in this invention forms the branching pole (3), respectively, prepares the spare terminal (4) of a negative electrode in a terminal's of negative electrode other side [a positive electrode] side at a terminal's of positive electrode other side side, and connects it with the branching pole (3). An insulation cap is prepared in a spare terminal (4), and it is constituted.

[0005] Each point of the pole (2) of a positive electrode and a negative electrode and the branching pole (3) forms a bolt receiving part with a terminal (7) so that it may have the size to which the scalpel screw containing a bolt with a terminal (8) is turned off. the bolt receiving part with a terminal (7) shall be the size which can take out the current which saw and was in the capacity of a battery Since the hole where a bolt with a terminal (8) goes into an upper pig (6) is established in each and a bolt receiving part with a terminal (7) is fixed further, a support flange (9) is prepared in an upper pig (6), and it fixes to it. An insulating pig (5) is attached in the hole of the bolt receiving part with a terminal (7) which screws in a bolt with a terminal (8) and is not used for the bolt receiving part with a terminal of the positive electrode of arbitration, and a negative electrode (7).

[0006] Magnitude of the screw section of a bolt with a terminal (8) is made into a different size with a positive electrode and a negative electrode. The same is said of the scalpel screw section. Moreover, in order to distinguish the positive electrode and negative electrode of a bolt with a terminal (8), it is possible to use each as a forward screw and a reverse screw.

[0007] Furthermore, in the battery which prepares notching ****, a positive electrode, and a negative electrode, and becomes so that it may become lower than an upper pig front face about the terminal area of a battery, a spare terminal (4) is similarly prepared for the corner on the other side in a notch, a positive-electrode terminal (10), and a negative-electrode terminal (11), respectively. Insulating covering is attached in the terminal which is not used.

[0008]

[Function] If it is made the battery with a spare terminal for R-L, since the positive electrode and the negative electrode face each other, respectively and the electrical potential difference is built over juxtaposition, the electrical potential difference of the positive electrode which the vehicle needs, and a negative electrode can be taken out only with changing the sense of a battery also by the vehicle with the vehicle by which the battery for R attached the battery carried in the vehicle etc. at the time of a put substitute, or the battery for L.

[0009]

[Example] Hereafter, an example is explained.

(**) Form the branching pole (3), respectively from the pole in the lower part of the polar terminal of a positive

electrode and a negative electrode (2), the branching pole (3) — branching — it is a conductor.

(**) Prepare the spare terminal (4) of a negative electrode in a terminal's of negative electrode other side [a positive electrode] side at a terminal's of positive electrode other side side, and connect with the branching pole (3).

(**) Put an insulation cap on a spare terminal (4).

[0010] (**) Each point of the pole (2) of a positive electrode and a negative electrode and the branching pole (3) forms a bolt receiving part with a terminal (7) so that it may have the size to which the scalpel screw containing a bolt with a terminal (8) is turned off.

(**) the bolt receiving part with a terminal (7) shall be the size which can take out the current which saw and was in the capacity of a battery Since the hole containing a bolt with a terminal (8) is established in each and a bolt receiving part with a terminal (7) is further fixed to an upper pig (6), a support flange (9) is prepared in an upper pig (6), and it fixes to it.

(**) Attach an insulating pig (5) in the hole of the bolt receiving part with a terminal (7) which screws in a bolt with a terminal (8) and is not used for the bolt receiving part with a terminal of the positive electrode of arbitration, and a negative electrode (7).

(**) The screw section of a bolt with a terminal (8) is made into a size which is different with a positive electrode and a negative electrode, and also makes the scalpel screw section the same.

(**) In order to distinguish the positive electrode of a bolt with a terminal (8), and a negative electrode, let each be a forward screw and a reverse screw.

(**) Form the screw section of a bolt receiving part with a terminal (7) with strong conductors, such as copper instead of lead.

(**) Constitute the screw section of a bolt with a terminal (8), and the core to the wrench hole for bolting from strong conductors, such as copper instead of lead, and they make a terminal area fix lead.

(**) Anchoring removal of a bolt with a terminal (8) shall prepare the angle of 6-8 in the insulating section of the wrench hole for bolting of a terminal, or a bolt with a terminal (8), and shall be bound tight and carried out by either.

[0011] This inventions are the above configurations, and when using this, they install a body (1) in the fitting location of the battery decided according to each type of a car, such as a wagon and a two-wheel barrow. The bolt receiving part with a terminal (7) which carries out skillful ***** is chosen as a fitting location, and a bolt with a terminal (8) is thrust into it. An insulating pig (5) is certainly thrust into the bolt receiving part with a terminal of those who do not use it (7). In this invention, since the positive electrode and the negative electrode face each other, respectively and the electrical potential difference is built over juxtaposition, the electrical potential difference of the positive electrode and negative electrode which the vehicle needs even for the vehicle which the battery for L attached even to the vehicle with the battery for R only by changing the sense of a battery is obtained in the case of a put substitute of the battery carried in the vehicle etc. As for the bolt with a terminal (8), not only a screwed type but a lock type etc. is considered. Let an insulating pig (5) be a lock type in that case. Moreover, when the size of the polar terminal of a positive electrode is made thick, the insulating pig here is also large, and when the size of the polar terminal of a negative electrode is made thin, the insulating pig here is also made small. If tools, such as hexagonal bars and a spanner, are used in case a bolt with a terminal (8) is screwed in, it can bind tight certainly. A bolt with a terminal (8) is classified for a positive electrode and a negative electrode by color to prevent mistakes, or the approach which has distinguished the sense of a screw enough and carries out it with a forward screw and a reverse screw is also considered. A poor contact needs to set the bolt with a terminal (8), and it is necessary to screw it in firmly so that there may be nothing, and it may be made to stick to a bolt receiving part with a terminal (7) completely. And the bolt receiving part with a terminal (7) prepares a support flange (9) in order to give reinforcement so that a bell and spigot can be borne. In the battery which prepares a notching **** positive electrode and a negative electrode, and becomes others so that it may become lower than an upper pig front face about the terminal area of a battery, a spare terminal (4) is similarly prepared for the corner on the other side in a notch, a positive-electrode terminal (10), and a negative-electrode terminal (11), respectively. Suppose at the terminal which is not used that insulating covering is prepared.

[0012]

[Effect of the Invention] Since this invention is constituted as explained above, it does so effectiveness which is indicated below.

(1) If the battery with a spare terminal for R-L is used, since the positive electrode and the negative electrode face each other, respectively and the electrical potential difference is built over juxtaposition, the electrical potential difference of the positive electrode which the vehicle needs, and a negative electrode is obtained only by changing the sense of a battery also by the vehicle by which the battery for R attached the battery carried in the vehicle etc. at the time of a put substitute, or the vehicle with the battery for L.

(2) The function of both directions can be filled now with attaching and changing a bolt with a terminal (8) by the battery of a piece regardless of R and L in the battery of the same size.

(3) A manufacturer is good regardless of R and L to the battery of the same size at manufacture of one kind of battery. A dealer can be managed now with one kind of inventory regardless of R and L to the battery of the same size.

(4) Since the difference between R and L is lost, there is no futility and the battery of expiration can be pressed down to the minimum. Therefore, it becomes possible to hold down the futility of the volume of a battery to the minimum, and it is connected to the solution in an environmental problem and waste disposal problems.

(5) A bolt with a terminal (8) melts, or the repair at the time of corroding will require only exchange of a bolt with a terminal (8), it is easy and becomes insurance. By using a bolt with a terminal (8), reuse of the battery itself increases and the bolt with a terminal itself can be reused further.

(6) When using it in series 24V, by changing the sense of the terminal to be used, a crossover may be short and may end.

Moreover, a bolt with a terminal (8) can be attached in a vacant bolt receiving part with a terminal (7), and a power source can be taken independently. Moreover, when I have charge carried out from other vehicles, it is good to use the terminal.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] This invention relates to the battery carried in a vehicle etc.

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PRIOR ART

[Description of the Prior Art] Conventionally, since the battery will be decided for the exception of the size of a battery, startability ability, and R and L etc. by the type of a car in the car carrying a battery etc. in the morning between the transit middle or winter etc. a life or when it damages, it had to be distinguished clearly and an order for it had to be placed. L of a battery means a thing in case right-hand side is a positive electrode, when a terminal is made into a near side. R means the reverse. It was very common for distinction of R and L to have little osmosis in a general user, and to be inconvenient in mistaking R and L, and not preparing them or correspondence being unable to perform immediately an inventory of the battery by which an order for a dealer side was also placed on the other hand in run out especially. In the battery of the same size, there was nothing that can be installed in the both directions of R and L.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since this invention is constituted as explained above, it does so effectiveness which is indicated below.
(1) If the battery with a spare terminal for R-L is used, since the positive electrode and the negative electrode face each other, respectively and the electrical potential difference is built over juxtaposition, the electrical potential difference of the positive electrode which the vehicle needs, and a negative electrode is obtained only by changing the sense of a battery also by the vehicle by which the battery for R attached the battery carried in the vehicle etc. at the time of a put substitute, or the vehicle with the battery for L.

(2) The function of both directions can be filled now with attaching and changing a bolt with a terminal (8) by the battery of a piece regardless of R and L in the battery of the same size.

(3) A manufacturer is good regardless of R and L to the battery of the same size at manufacture of one kind of battery. A dealer can be managed now with one kind of inventory regardless of R and L to the battery of the same size.

(4) Since the difference between R and L is lost, there is no futility and the battery of expiration can be pressed down to the minimum. Therefore, it becomes possible to hold down the futility of the volume of a battery to the minimum, and it is connected to the solution in an environmental problem and waste disposal problems.

(5) A bolt with a terminal (8) melts, or the repair at the time of corroding will require only exchange of a bolt with a terminal (8), it is easy and becomes insurance. By using a bolt with a terminal (8), reuse of the battery itself increases and the bolt with a terminal itself can be reused further.

(6) When using it in series 24V, by changing the sense of the terminal to be used, a crossover may be short and may end.

Moreover, a bolt with a terminal (8) can be attached in a vacant bolt receiving part with a terminal (7), and a power source can be taken independently. Moreover, when I have charge carried out from other vehicles, it is good to use the terminal.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] This had the following faults.

(**) There are two kinds of a variety of batteries, R and L, and there was no compatibility in the battery of each of both directions to the battery of the same size. Even if it was going to use the battery of hard flow forcibly, since the terminal strapping section of a car did not arrive and the location of battery loading was decided with the car, it was very impossible. Moreover, even if it extended and installed wiring by the side of a car, there is possibility, such as a poor contact of an extension, and in being the worst, it reverse-connects a positive electrode and a negative electrode, and the electric equipment article might be damaged.

(**) A manufacturer needs manufacture of two kinds of batteries, R and L, to the battery of the same size, a dealer must carry out two kinds of inventories, respectively, and there are many absolute numbers.

(**) Though it was usable enough, since I hear that there is not the compatibility of R and L and the expiration date only went out, there is a battery which must be disposed of considerably and it is in a very serious situation also in the waste disposal problems of incombustibles, and an environmental problem.

(**) The pole melts, or in the case of repair at the time of corroding, the gas burner etc. was needed and danger has followed.

(**) When the pole is unfixable, even if the battery itself is not faulty, the exchange for every body is required.

(**) when the need term of a battery comes, many which of R and L are needed -- that prediction -- not being attached -- surely -- on the other hand, the present condition is that it is insufficient and one side remains, and the surplus one is altogether set as the object of disposal, if the expiration date of half a year goes out.

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MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, from the pole in the battery of the polar terminal of a positive electrode and a negative electrode (2), the battery with a spare terminal for R-L in this invention forms the branching pole (3), respectively, prepares the spare terminal (4) of a negative electrode in a terminal's of negative electrode other side [a positive electrode] side at a terminal's of positive electrode other side side, and connects it with the branching pole (3). An insulation cap is prepared in a spare terminal (4), and it is constituted.

[0005] Each point of the pole (2) of a positive electrode and a negative electrode and the branching pole (3) forms a bolt receiving part with a terminal (7) so that it may have the size to which the scalpel screw containing a bolt with a terminal (8) is turned off. the bolt receiving part with a terminal (7) shall be the size which can take out the current which saw and was in the capacity of a battery. Since the hole where a bolt with a terminal (8) goes into an upper pig (6) is established in each and a bolt receiving part with a terminal (7) is fixed further, a support flange (9) is prepared in an upper pig (6), and it fixes to it. An insulating pig (5) is attached in the hole of the bolt receiving part with a terminal (7) which screws in a bolt with a terminal (8) and is not used for the bolt receiving part with a terminal of the positive electrode of arbitration, and a negative electrode (7).

[0006] Magnitude of the screw section of a bolt with a terminal (8) is made into a different size with a positive electrode and a negative electrode. The same is said of the scalpel screw section. Moreover, in order to distinguish the positive electrode and negative electrode of a bolt with a terminal (8), it is possible to use each as a forward screw and a reverse screw.

[0007] Furthermore, in the battery which prepares notching ****, a positive electrode, and a negative electrode, and becomes so that it may become lower than an upper pig front face about the terminal area of a battery, a spare terminal (4) is similarly prepared for the corner on the other side in a notch, a positive-electrode terminal (10), and a negative-electrode terminal (11), respectively. Insulating covering is attached in the terminal which is not used.

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OPERATION

[Function] If it is made the battery with a spare terminal for R-L, since the positive electrode and the negative electrode face each other, respectively and the electrical potential difference is built over juxtaposition, the electrical potential difference of the positive electrode which the vehicle needs, and a negative electrode can be taken out only with changing the sense of a battery also by the vehicle with the vehicle by which the battery for R attached the battery carried in the vehicle etc. at the time of a put substitute, or the battery for L.

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EXAMPLE

[Example] Hereafter, an example is explained.

- (**) Form the branching pole (3), respectively from the pole in the battery in the lower part of the polar terminal of a positive electrode and a negative electrode (2). the branching pole (3) — branching — it is a conductor.
- (**) Prepare the spare terminal (4) of a negative electrode in a terminal's of negative electrode other side [a positive electrode] side at a terminal's of positive electrode other side side, and connect with the branching pole (3).
- (**) Put an insulation cap on a spare terminal (4).
- [0010] (**) Each point of the pole (2) of a positive electrode and a negative electrode and the branching pole (3) forms a bolt receiving part with a terminal (7) so that it may have the size to which the scalpel screw containing a bolt with a terminal (8) is turned off.
- (**) the bolt receiving part with a terminal (7) shall be the size which can take out the current which saw and was in the capacity of a battery Since the hole containing a bolt with a terminal (8) is established in each and a bolt receiving part with a terminal (7) is further fixed to an upper pig (6), a support flange (9) is prepared in an upper pig (6), and it fixes to it.
- (**) Attach an insulating pig (5) in the hole of the bolt receiving part with a terminal (7) which screws in a bolt with a terminal (8) and is not used for the bolt receiving part with a terminal of the positive electrode of arbitration, and a negative electrode (7).
- (**) The screw section of a bolt with a terminal (8) is made into a size which is different with a positive electrode and a negative electrode, and also makes the scalpel screw section the same.
- (**) In order to distinguish the positive electrode of a bolt with a terminal (8), and a negative electrode, let each be a forward screw and a reverse screw.
- (**) Form the screw section of a bolt receiving part with a terminal (7) with strong conductors, such as copper instead of lead.
- (**) Constitute the screw section of a bolt with a terminal (8), and the core to the wrench hole for bolting from strong conductors, such as copper instead of lead, and they make a terminal area fix lead.
- (**) Anchoring removal of a bolt with a terminal (8) shall prepare the angle of 6-8 in the insulating section of the wrench hole for bolting of a terminal, or a bolt with a terminal (8), and shall be bound tight and carried out by either.
- [0011] This inventions are the above configurations, and when using this, they install a body (1) in the fitting location of the battery decided according to each type of a car, such as a wagon and a two-wheel barrow. The bolt receiving part with a terminal (7) which carries out skillful **** is chosen as a fitting location, and a bolt with a terminal (8) is thrust into it. An insulating pig (5) is certainly thrust into the bolt receiving part with a terminal of those who do not use it (7). In this invention, since the positive electrode and the negative electrode face each other, respectively and the electrical potential difference is built over juxtaposition, the electrical potential difference of the positive electrode and negative electrode which the vehicle needs even for the vehicle which the battery for L attached even to the vehicle with the battery for R only by changing the sense of a battery is obtained in the case of a put substitute of the battery carried in the vehicle etc. As for the bolt with a terminal (8), not only a screwed type but a lock type etc. is considered. Let an insulating pig (5) be a lock type in that case. Moreover, when the size of the polar terminal of a positive electrode is made thick, the insulating pig here is also large, and when the size of the polar terminal of a negative electrode is made thin, the insulating pig here is also made small. If tools, such as hexagonal bars and a spanner, are used in case a bolt with a terminal (8) is screwed in, it can bind tight certainly. A bolt with a terminal (8) is classified for a positive electrode and a negative electrode by color to prevent mistakes, or the approach which has distinguished the sense of a screw enough and carries out it with a forward screw and a reverse screw is also considered. A poor contact needs to set the bolt with a terminal (8), and it is necessary to screw it in firmly so that there may be nothing, and it may be made to stick to a bolt receiving part with a terminal (7) completely. And the bolt receiving part with a terminal (7) prepares a support flange (9) in order to give reinforcement so that a bell and spigot can be borne. In the battery which prepares a notching ****, positive electrode and a negative electrode, and becomes others so that it may become lower than an upper pig front face about the terminal area of a battery, a spare terminal (4) is similarly prepared for the corner on the other side in a notch, a positive-electrode terminal (10), and a negative-electrode terminal (11), respectively. Suppose at the terminal which is not used that insulating covering is prepared.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] a part of this invention — it is a notch cross-section perspective view.

[Drawing 2] It is the situation map which inserts the bolt with a terminal of this invention in a bolt receiving part with a terminal.
(In the case of this drawing, a spare terminal serves as right-hand side.)

[Drawing 3] It is the expanded sectional view of the insulating pig of this invention.

[Drawing 4] It is the expanded sectional view of the bolt with a terminal of this invention, and a bolt receiving part with a terminal.

[Drawing 5] It is drawing showing the location of the terminal of R in the conventional battery, and L.

[Drawing 6] It is drawing showing the location of the terminal in this invention.

[Drawing 7] one example of this invention is shown — it is a notch perspective view a part.

[Drawing 8] It is the enlarged drawing of the bolt with a terminal of this invention.

[Drawing 9] It is one example of the battery which constituted the terminal area so that it might become lower than an upper pig side.

[Description of Notations]

1 Body

2 Pole

3 Branching Pole

4 Spare Terminal

5 Insulating Pig

6 Upper Pig

7 Bolt Receiving Part with Terminal

8 Bolt with Terminal

9 Support Flange

10 Positive-Electrode Terminal

11 Negative-Electrode Terminal

[Translation done.]

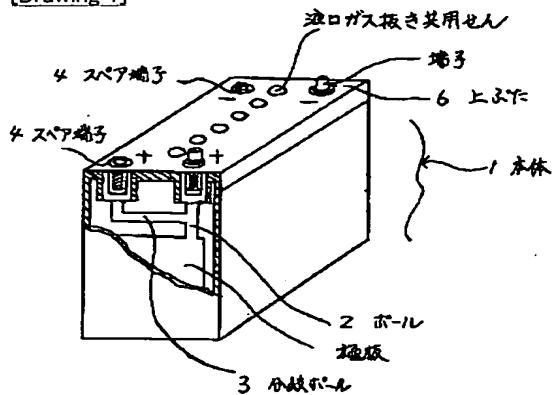
* NOTICES *

JPO and NCIPI are not responsible for any damages caused by the use of this translation.

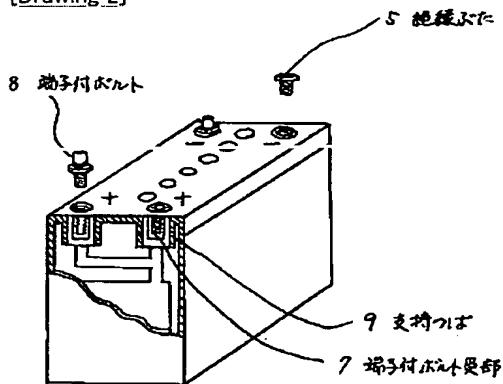
1. This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

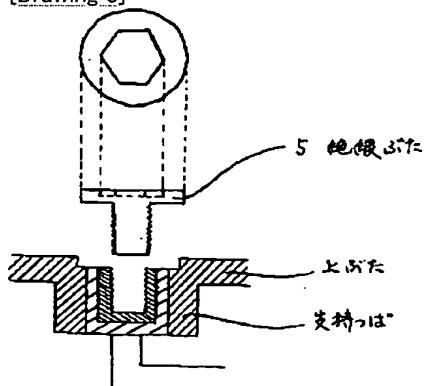
[Drawing 1]



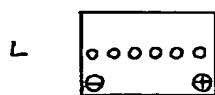
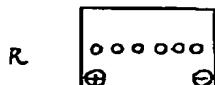
[Drawing 2]



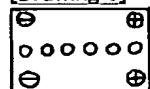
[Drawing 3]



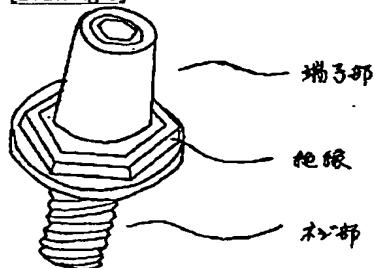
[Drawing 5]



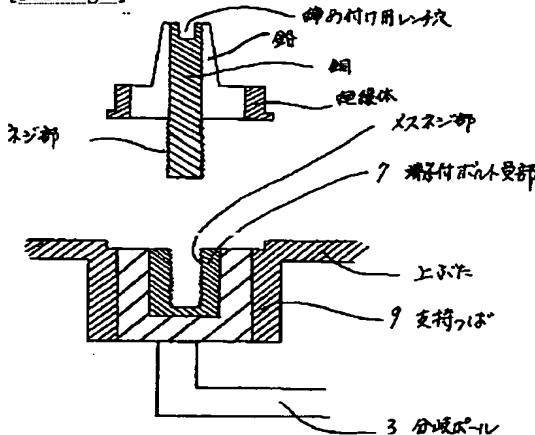
[Drawing 6]



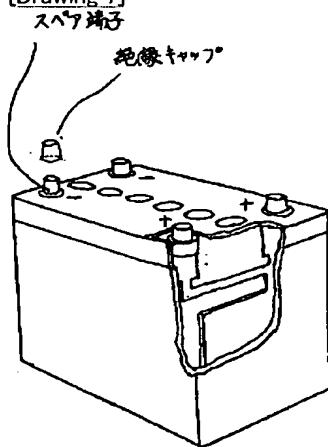
[Drawing 8]



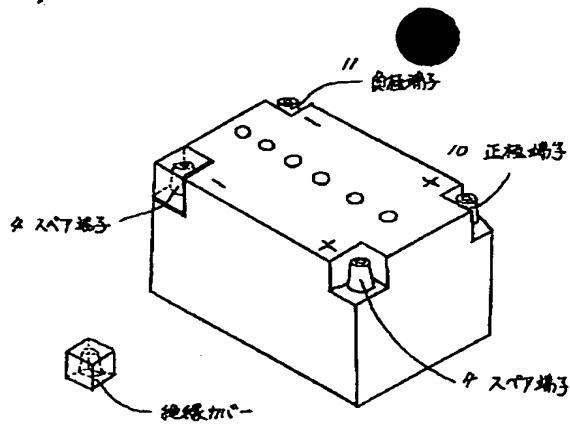
[Drawing 4]



[Drawing 7]



[Drawing 9]



[Translation done.]